

QUANTUM INTERFEROMETRY

Augusto Smerzi

*BEC-INFM*

*Dipartimento di Fisica, Università di Trento*

*Via Sommarive 14*

*I-38050 Povo, Italy*

I'll talk about the possibility to interferometrically measure phase shifts with sensitivity bounded by the Heisenberg limit. The analysis is based on a Bayesian study of a BEC Mach-Zehnder interferometer. I'll focus on the dynamics of a non-linear beam splitter (the nonlinearity arising from the interatomic BEC interaction) and on some widely accepted old results which are not so acceptable, after all.